IN THE CLAIMS:

Please amend claims as follows:

1.   (Currently Amended) A differential limiting control apparatus for a vehicle having a clutch unit interposed between one rotational shaft and another rotational shaft for variably changing a driving force transmission between the one rotational shaft and the other rotational shaft, comprising:

a target differential speed setting unit for setting a target differential speed between the one rotational shaft and the other rotational shaft,

an actual differential speed detecting unit for detecting an actual differential speed between the one rotational shaft and the other rotational shaft,

a ~~feedback control clutch torque computing~~ first control unit for computing [[the]] a first clutch torque of the clutch unit based on ~~vehicle behaviors through a feedback control~~ a deviation between the target differential speed and the actual differential speed,

a throttle opening amount detecting unit for detecting a throttle opening amount,

a ~~feed forward~~ second control unit for computing [[the]] a second clutch torque of the clutch unit based on ~~said behaviors through a feed forward control, the feed forward unit computes the clutch torque based on a~~ the throttle opening amount,

a tire diameter difference computing unit for computing a diameter difference of a tire, and

a final clutch torque computing unit for computing a final clutch torque ~~by changing a ratio of said clutch torque obtained through the feedback control and the feed forward control~~ wherein the final clutch torque computing unit computes the final clutch torque by a computation involving the first clutch torque and the second clutch torque in association with a ratio coefficient value which ratio coefficient value changes according to the diameter difference of the tire so as to suppress a wheel slippage ~~by setting a ratio of clutch torque values between the feed forward and feedback control~~.

2.   (Currently Amended) The differential limiting control apparatus as set forth in claim 1, wherein:

the ~~feedback~~ first control ~~clutch torque computing~~ unit [[has]] comprises:

~~a target differential speed setting unit for setting a target differential speed between~~

the one rotational shaft and the other rotational shaft,

an actual differential speed detecting unit for detecting an actual differential speed between the one rotational shaft and the other rotational shaft, and

a first clutch torque computing unit for computing an engagement force of the clutch unit the first clutch torque by obtaining [[a]] the deviation between the target differential speed and the actual differential speed with a switching function by using at least a polarity related to an integral term of the deviation and by applying a sliding mode control.

3. (Currently Amended) The differential limiting control apparatus as set forth in claim 1, wherein:

the final clutch torque computing unit reduces the ratio coefficient value associated with [[of]] said second clutch torque obtained through the feed forward control and increases the ratio coefficient value associated with said first clutch torque as the diameter difference of the tire increases.

4. (Currently Amended) The differential limiting control apparatus as set forth in claim 1, wherein:

the tire diameter difference computing unit calculates the diameter difference based on at least [[an]] the actual differential speed between the one rotational shaft and the other rotational shaft when the vehicle is running substantially straight and when a slippage detection is [[so]] difficult to be detected between a road and wheels.

5. (Original) The differential limiting control apparatus as set forth in claim 1, wherein:

the clutch unit is interposed between a front axle and a rear axle.

6. (Original) The differential limiting control apparatus as set forth in claim 2, wherein:

the clutch unit is interposed between a front axle and a rear axle.

7. (Original) The differential limiting control apparatus as set forth in claim 3,

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wherein:

the clutch unit is interposed between a front axle and a rear axle.

8.   (Original) The differential limiting control apparatus as set forth in claim 4, wherein:

the clutch unit is interposed between a front axle and a rear axle.

9.   (Currently Amended) The differential limiting control apparatus as set forth in claim 1, wherein:

the clutch unit limits a differential action of a differential interposed between a left wheel and a right wheel.

10.   (Currently Amended) The differential limiting control apparatus as set forth in claim 2, wherein:

the clutch unit limits a differential action of a differential interposed between a left wheel and a right wheel.

11.   (Currently Amended) The differential limiting control apparatus as set forth in claim 3, wherein:

the clutch unit limits a differential action of a differential interposed between a left wheel and a right wheel.

12.   (Currently Amended) The differential limiting control apparatus as set forth in claim 4, wherein:

the clutch unit limits a differential action of a differential interposed between a left wheel and a right wheel.

13-25.   (Canceled).

26.   (Currently Amended) The differential limiting control apparatus as set forth in Claim 1, further comprising a brake switch, and

when an ON signal is inputted from the brake switch, the <u>second</u> clutch torque ~~obtained through the feed forward control~~ is made to be zero.

27-28. (Canceled).

29. (Currently Amended) The differential limiting control apparatus as set forth in claim 1, wherein the final clutch torque (T lsd) involves the following equation:

Tlsd=Rtr Tlsdff + (1-Rtr) Tlsdfb

with Rtr representing <u>the ratio coefficient value in</u> [[a]] tire diameter difference constant <u>form</u>;

Tlsdff representing <u>the second</u> clutch torque ~~provided through the feed forward control~~; and

Tlsdfb representing <u>the first</u> clutch torque ~~provided through the feedback control~~.

30. (Canceled).

31. (New) The differential limiting control apparatus as set forth in claim 29, wherein

the Rtr decreases as the diameter difference of the tire increases.

32. (New) The differential limiting control apparatus as set forth in claim 29, wherein

the Rtr is 0.5 in the case where the diameter difference of the tire is substantially zero.

33. (New) The differential limiting control apparatus of claim 1, wherein said first end second torques are summed and said first and second torques are each associated with a weighted average ratio coefficient value.

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